

REMARKS/ARGUMENTS

Claims 1-33 are pending in the application. Claims 1-33 have been rejected. Claims 2,-4, 7-12, 14, 23 have been amended to clarify the claim language but not for purposes of patentability. New claim 34 has been added directed to a specific embodiment of the invention without prejudice to the broader claims in the application.

Rejections under 35 U.S.C. §101.

The Office Action has rejected claims 1-33 under 35 U.S.C. §101 as being directed to non-statutory subject matter. Applicant respectfully traverses this rejection. Claim 1 is directed to the statutory category of "machine." Claim 21 is directed to the statutory category of "methods" and claim 23 is directed to the statutory category of "manufacture." Computer programs and machines implementing those programs have been held to constitute patentable subject matter. Section 101 explains that an invention includes "any new and useful process, machine, manufacture or composition of matter." 35 U.S.C. §101 (2000). Without question, software code alone qualifies as an invention eligible for patenting under these categories, at least as processes. *Eolas Technologies Inc. v. Microsoft Corp.*, 73 USPQ2d 1782 (CA FC 2005), citing *In re Alappat*, 33 F.3d 1526 [31 USPQ2d 1545] (Fed. Cir. 1994); *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352 [50 USPQ2d 1447] (Fed. Cir. 1999); MPEP §2106.IV.B.1.a. (8th ed., rev. 2 2001). The patented invention in this case is such a software product. Thus, this software code claimed in conjunction with a physical structure fits within at least those two categories of subject matter within the broad statutory label of "patented invention." Therefore, this rejection should be withdrawn.

Rejections under 35 U.S.C. §103

The Office Action rejected claims 24 and 44-47 as unpatentable over Wolczko (U. S. Patent 5,900,001) in view of Aman (U. S. Patent 6,694,346). Applicant respectfully traverses these rejections.

A claimed invention is unpatentable if the differences between it and the prior art "are such that the subject matter as a whole would have been obvious at the time the invention was

made to a person having ordinary skill in the art." 35 U.S.C. 103(a) (Supp. 1998); *see Graham v. John Deere Co.*, 383 U.S. 1, 14, 148 USPQ 459, 465 (1966). The ultimate determination of whether an invention is or is not obvious is a legal conclusion based on underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. *See Graham*, 383 U.S. at 17-18, 148 USPQ at 467; *Miles Labs, Inc., Inc. v. Shandon Inc.*, 997 F.2d 870, 877, 27 USPQ2d 1123, 1128 (Fed. Cir. 1993).

The obviousness analysis begins in the text of section 103 quoted above, with the phrase "at the time the invention was made." For it is this phrase that guards against entry into the "tempting but forbidden zone of hindsight," *see Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 873, 228 USPQ 90, 98 (Fed. Cir. 1985), overruled on other grounds by *Nobelpharma AB v. Implant Innovations, Inc.*, 141 F.3d 1059, 46 USPQ2d 1097 (Fed. Cir. 1998), when analyzing the patentability of claims pursuant to that section. Measuring a claimed invention against the standard established by section 103 requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. *See, e.g., W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983). Close adherence to this methodology is especially important in the case of less technologically complex inventions, where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *Id.*

The best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. *See, e.g., C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998) (describing "teaching or suggestion or motivation [to combine]" as an "essential evidentiary component of an obviousness holding"); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) ("the Board must identify specifically . . . the reasons one of ordinary skill in the art would have been motivated to

select the references and combine them"); *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (the examiner can satisfy burden of obviousness in light of combination "only by showing some objective teaching [leading to the combination]"); *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) (evidence of teaching or suggestion "essential" to avoid hindsight); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297, 227 USPQ 657, 667 (Fed. Cir. 1985) (district court's conclusion of obviousness was error when it "did not elucidate any factual teachings, suggestions or incentives from this prior art that showed the propriety of combination"). *See also Graham*, 383 U.S. at 18, 148 USPQ at 467 ("strict observance" of factual predicates to obviousness conclusion required). Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight. *See, e.g., Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed. Cir. 1985) ("The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time."). In this case, the Board fell into the hindsight trap.

Evidence of a suggestion, teaching, or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved, *see Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996), *Para-Ordinance Mfg. v. SGS Imports Intern., Inc.*, 73 F.3d 1085, 1088, 37 USPQ2d 1237, 1240 (Fed. Cir. 1995), although "the suggestion more often comes from the teachings of the pertinent references," *Rouffet*, 149 F.3d at 1355, 47 USPQ2d at 1456. The range of sources available, however, does not diminish the requirement for actual evidence: the showing must be clear and particular. *See, e.g., C.R. Bard*, 157 F.3d at 1352, 48 USPQ2d at 1232. Broad conclusory statements regarding the teaching of multiple references, standing alone, are not "evidence." *E.g., McElmurry v. Arkansas Power & Light Co.*, 995 F.2d 1576, 1578, 27 USPQ2d 1129, 1131 (Fed. Cir. 1993) ("Mere denials and conclusory statements, however, are not sufficient to establish a genuine issue of material fact."); *In re Sichert*, 566 F.2d 1154, 1164, 196 USPQ 209, 217 (CCPA 1977) ("The examiner's conclusory statement that the specification does not teach the best mode of using the invention is

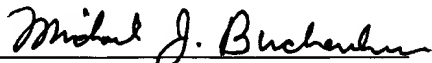
unaccompanied by evidence or reasoning and is entirely inadequate to support the rejection."). In addition to demonstrating the propriety of an obviousness analysis, particular factual findings regarding the suggestion, teaching, or motivation to combine serve a number of important purposes, including: (1) clear explication of the position adopted by the Examiner and the Board; (2) identification of the factual disputes, if any, between the applicant and the Board; and (3) facilitation of review on appeal. Here, however, the Office Action did not make particular findings regarding the locus of the suggestion, teaching, or motivation to combine the prior art references.

Claim 1 recites a computer system providing an object-based virtual machine environment for running successive applications, the computer system including storage, at least a portion of which is logically divided into two or more heaps in which objects can be stored, wherein a first heap is reset between successive applications, and a second heap persists from one application to the next, the system including: a card table comprising multiple cards, each corresponding to a region of said storage, each card in the card table being set to null when the first heap is reset between successive applications; means for marking a card whenever an object in its corresponding storage region is updated; and means for detecting possible references from the second heap to the first heap at reset by scanning the cards in the card table corresponding to the second heap, and detecting any cards which have been marked.

The Wolczko actually describes a way to locate an object in a card and relies on tagged storage to do it. It only contains a description of known card marking technique which is but a single element of the combination claimed herein. The Aman patent describes the technique of clearing the transient heap after a transaction and that is another element of the claimed invention. The Office Action concedes that Wolczko does not disclose the use of resetting heap applications. However, the Office Action contends that Aman teaches this element and that it would have been obvious to one skilled in the art to modify Wolczko according to Aman. Applicant respectfully submits that claim 1 would not have been obvious in view of the combination of Wolczko and Aman. We claim that the card table is set to null when a reset occurs. That limitation is neither taught, motivated, nor suggested by the combination of Wolczko and Aman.

In summary the limitation that each card in the card table is set to null when the first heap is reset between successive applications is not obvious in view of either of the referenced patents. Because the other claims are include the limitation discussed above as in claim 1, Applicants respectfully request reconsideration of the rejections and an early allowance.

Respectfully submitted,


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I hereby certify that this Amendment and Response to Office Action, and any documents referred to as attached therein, are being deposited with the United States Postal Office with sufficient postage as first-class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.



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